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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/512,407

10/25/2004

Masahiro Oshikiri

L9289.04162

4624

24257 7590 06/17/2008

STEVENS DAVIS LLP

1615 L STREET NW

SUITE 850

WASHINGTON, DC 20036

EXAMINER

SHAH, PARAS D

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

06/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/512,407	Applicant(s) OSHIKIRI, MASAHIRO	
	Examiner PARAS SHAH	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/18/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/09/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to the Amendments and Arguments filed on 04/18/2008. Claims 1-42 have been cancelled, while claims 43-56 have been newly added. The Applicants' amendment and remarks have been carefully considered, but they do not place the claims in condition for allowance. Accordingly, this action has been made FINAL.

2. All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Response to Arguments

3. Applicant's arguments (pages 8-11) filed on 04/18/2008 with regard to claims 43-56 have been fully considered but they are moot in view of new grounds for rejection.

Response to Amendment

4. Applicants' amendments filed on 04/18/2008 have been fully considered. The newly amended limitations in 43-56 necessitate new grounds of rejection. Specifically the limitations of "weighting on an input signal to mask a spectrum of quantization distortion by a spectral envelope" and the "specifying section."

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 05/09/2008 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 43, 48, 55, and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what the 3rd paragraph of the limitation means due to the use of commas. Further, it is unclear as to what generates the error spectrum. For the purposes of compact prosecution, the limitation was interpreted to mean the spectrum obtained from the input signal subtracted by the decoded signal.

Claim Objections

8. Claim 51 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 50. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 43-45, 48, 49, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* (JP 08-263096) in view of Pan *et al.* (US 6,092,041)

As to claims 43 and 55, Jin *et al.* teaches a sound coding apparatus comprising:

a first coding section (see [0015], 1st encoder 241) that performs weighting on an input signal to mask a spectrum of quantization distortion by a spectral envelope of the input signal, and thereafter encodes the input signal and obtains first coding information (see [0020], acoustic sense weighting filter 42 is used for performing weighting in order to consider the masking property of humans. The acoustic weighting determined based on spectral weighting);

a decoding section (see [0015], local decoder 251) that decodes the first coding information and obtains a decoded signal (see [0015])(e.g. The local decoder decodes the signal from the encoder 241.);

a subtracting section (see [0015], difference circuit 28) that obtains a residual error signal of the input signal and the decoded signal; and

a second coding section (see [0015], 2nd encoder 242) that encodes the frequency region in the residual error signal specified by the specifying section,

and obtains second coding information (see [0015], difference circuit 28) between said input signal and said decoded signal of which sampling rate is raised, and obtains second coding information (see [0015] and [0016]) (e.g. The values of the decoded signal for which the sampling rate was raised and the input signal are the parameters. A difference is computed and the second coding information is obtained.).

However, Jin *et al.* does not specifically teach the specifying section that calculates an auditory masking threshold for a decoded spectrum that is obtained from the decoded signal, and, by performing a scale adjustment and normalization of the decoded spectrum, generates an error spectrum that is compared against the auditory masking threshold, from the decoded spectrum, and specifies a frequency region in the error spectrum showing an amplitude equal to or greater than the auditory masking threshold;

Pan does teach the a specifying section (see Figure 1, Hybrid Psychoacoustic Modeling and Quantizer Control Unit 132) that calculates an auditory masking threshold for a decoded spectrum that is obtained from the decoded signal (see Figure 1, output of low bit rate decoding unit 130, into 132), and by performing a scale adjustment and normalization of the decoded spectrum (see col. 4, lines 44-55, low band frequency coefficients are flagged based on masking threshold to prevent audible distortion), generates an error spectrum (see output of 110, into Time-Frequency analysis unit 114) that is compared against the auditory masking threshold (see col. 6, lines 6-12,

frequency coefficients are used indicating a spectrum of the signal and compared to masking thresholds), from the decoded spectrum, and specifies a frequency region in the error spectrum showing an amplitude equal to or greater than the auditory masking threshold (see col. 6, lines 6-12, frequency coefficients are flagged for those that may be omitted from coding and see Figure 4).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the sound coding apparatus and method as taught by Jin *et al.* with the inclusion of a specifying section incorporating auditory masking as taught by Pan *et al.* for the purpose of preventing audible distortion and improving coding efficiency (see Pan *et al.* col. 4, lines 44-55).

As to claim 44, Jin *et al.* in view of Pan *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Jin teaches wherein:

with respect to the input signal, the first coding section encodes a low frequency region (see [0015], down-sampling from sample rate converter 221 and is input into encoder 241); and

with respect to the residual signal, the second coding section encodes the and encodes a predetermined region in a high frequency region (see [0015], up-sampling from sample rate converter 261 into 2nd encoder 242) (e.g. The

sampling frequency is up-sampled on the decoded signal. The sampling frequency of the input and the up-sampler are the same at 24kHz.);.

Furthermore, Pan *et al.* teaches a low frequency region specified by the specifying section (see col. 6, lines 5-15 and col. 4, lines 49-55, lowband frequency coefficients coded for those above a threshold.).

As to claim 45, Jin *et al.* in view of Pan *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Pan *et al.* teaches wherein the second coding section finds a difference from the auditory masking threshold value every frequency (see col. 6, lines 5-15 and col. 4, lines 49-55, lowband threshold is compared for all frequency coefficients) and determines a distribution of encoded bits based on the differences (see col. 6, lines 5-15 and col. 4, lines 49-55, those coefficients not above a threshold are not coded.) (e.g. The distribution of encoded bits occurs from the omission of those frequency coefficients not above a threshold at each frequency.)

As to claims 48, 49, and 56 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see [0022]-[0024], decryption and Pan *et al.* Figure 1, decoder portion).

11. Claims 46, 47, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* in view of Pan *et al.* as applied in claim 43, above and further in view of Kono (JP 08-046517).

As to claims 46, Jin *et al.* in view of Pan *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Pan *et al.* teaches a frequency showing an amplitude equal to or greater than the normalized auditory masking threshold (see col. 6, lines 5-15 and col. 4, lines 49-55, those coefficients not above a threshold are not coded and the analysis is done for each frequency.).

However, Jin *et al.* in view of Pan *et al.* do not specifically teach that the normalization of a threshold specifying a frequency region.

Kono does teach a auditory masking being normalized for each specified frequency region (see [0059], the alpha is a level for which a maximum noise allowance is determined for each critical band.)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* in view of Pan *et al.* with the use of auditory masking normalization for a specific region as taught by Kono. The reason for using the normalized auditory masking threshold for specific frequency regions involve there existing only two finite types of applying thresholds, which consists of applying the threshold at each frequency or at each frequency band, which would have been obvious to

one of ordinary skilled in the art to choose from this finite number of options with a reasonable expectation of success (see MPEP 2143, Exemplary Rationales, Rationale E). Further the use of a threshold at a band level enables the threshold criteria to be uniform for similar frequency bands.

As to claims 47, Jin *et al.* in view of Pan *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Jin *et al.* teaches the encoding being done of the enhancement layer by a rectangular cosine conversion using a discrete cosine transform (see [0021], rectangular cosine transform for encoder 242).

However, Jin *et al.* in view of Pan *et al.* does not specifically teach the encoding being done by orthogonal transformation using MDCT processing.

Kono does teach

said enhancement layer coding section (see [0032], coding network 54 encodes an input signal using orthogonal transformation using MDCT (see [0038] and [0041], MDCT circuit 13).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* in view of Pan *et al.* with the use of encoding using orthogonal transformation with MDCT processing as taught by Kono. The motivation to have combined the references involves the consideration of the auditory masking from the spectrum

of data (see Kono, [0038]). Further, the encoding of the enhancement layer using MDCT is another method for encoding a signal as is well known in the art.

As to claims 50-52 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin *et al.* [0022]-[0024], decryption and Pan *et al.* Figure 1, decoder portion).

12. Claims 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebara *et al.* (JP 2000-322097) in view of Jin *et al.* in view of Pan *et al.*

As to claim 53, Ebara *et al.* teaches a communication terminal apparatus (see [0045])

However, Ebara *et al.* does not specifically teach the coding apparatus as claimed in claim 1.

Jin *et al.* in view of Pan *et al.* does teach the coding apparatus as claim 48 (see Jin [0015]-[0016] and Pan, col. 6, lines 66-15 and see above rejection for claim 48).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the terminal as apparatus taught by Ebara *et al.* with coding apparatus as taught by Jin *et al.* in view of Pan. The motivation to have combined the references involves equipping the sound

transmitter with a type of voice coding and decoding equipment quality improvement (see Ebara *et al.*, [0044] and abstract).

As to claim 54, Ebara *et al.* teaches a base station (see [0046])

However, Ebara *et al.* does not specifically teach the coding apparatus as claimed in claim 1.

Jin *et al.* in view of Pan *et al.* does teach the coding apparatus as claim 48 (see Jin [0015]-[0016] and Pan, col. 6, lines 66-15 and see above rejection for claim 48).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified base station apparatus taught by Ebara *et al.* with coding apparatus as taught by Jin *et al.* in view of Pan. The motivation to have combined the references involves equipping the sound transmitter with a type of voice coding and decoding equipment quality improvement (see Ebara *et al.*, [0044] and abstract).

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARAS SHAH whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paras Shah/
Examiner, Art Unit 2626

06/14/2008

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626